

### **REMARKS**

Claims 1 through 20 are now pending in the application. Claims 18-20 are withdrawn. Claim 11 is herein canceled. Claims 1, 3-9 and 12-17 are herein amended. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### **REJECTION UNDER 35 U.S.C. § 112**

Claims 1 through 17 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicant regards as the invention. This rejection is respectfully traversed.

Applicants note Claim 11 is herein canceled, rendering the 35 U.S.C. § 112, second paragraph rejection of Claim 11 moot. Applicants have amended the Claims to overcome the 35 U.S.C. § 112, second paragraph rejection of Claims 1-17. Claims 1 and 8 has been amended to include elements to maintain the various fuel rods and water passages in their indicated disposed relationship to each other and to the channel. The Examiner noted Claims such as Claim 5 are vague, indefinite and incomplete as to what all is meant by and is encompassed by the reference to a “water passage”. Applicants have added limitations to Claims 5 and 6 to note the water passages are each defined as a tube. Applicants further note the term “adjacent” has in general been replaced by “proximate” or “proximately” having a general meaning of “next or nearest in space” as defined in Webster’s New World College Dictionary, Fourth Edition, 2001. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 112, second paragraph rejection of Claims 1-10 and 12-17.

### **REJECTION UNDER 35 U.S.C. § 102**

Claims 8, 9 and 13-16 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Bender et al. (U.S. Published Patent Application No. US2002/0075987). This rejection is respectfully traversed.

Bender et al. appears to disclose fuel rods of normal length and fuel rods of a shorter length designated PL and an even shorter length PL' (see paragraph [0063]. As shown in Figures 7 and 8, at least one of the normal length fuel rods is positioned outward of any of the shorter length rods PL. Bender et al. therefore does not disclose a plurality of intermediate-length fuel rods outwardly disposed in said channel and each proximately positioned to one of said perimeter walls as recited in amended Claim 8.

Bender et al. therefore does not anticipate amended Claim 8. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claim 8. Because Claims 9 and 13-16 depend from Claim 8, Bender et al. therefore does not anticipate any of Claims 9 or 13-16 for at least the same reasons. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claims 9 and 13-16.

Bender et al. does not anticipate amended Claim 9 for at least the following additional reason. Bender et al. does not disclose intermediate length fuel rods, wherein said intermediate-length fuel rods further comprise a plurality of rod sub-groups each having at least one intermediate-length fuel rod per sub-group, as recited in amended Claim 9.

Claims 8-10 and 13-17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Ogiya et al. (U.S. Pat. No. 4,968,479). This rejection is respectfully traversed.

Ogiya et al. appears to disclose full-length fuel rods 21, first short fuel rods 23 (designated LR) and second short fuel rods 24 (designated SR) (see column 9, lines 4-9). At least one of the full-length fuel rods 21 is positioned outward of any of the first or second shorter length rods 23,24 and between any of the first or second shorter length rods 23, 24 and the channel box(es) 30, 37, 42, 49, 52. Ogiya et al. therefore does not disclose a plurality of intermediate-length fuel rods outwardly disposed in said channel and each proximately positioned to one of said perimeter walls as recited in amended Claim 8.

Ogiya et al. therefore does not anticipate amended Claim 8. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claim 8. Because Claims 9-10 and 13-17 depend from Claim 8, Ogiya et al. therefore does not anticipate any of Claims 9-10 or 13-17 for at least the same reasons. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claims 9-10 and 13-17.

Claims 8, 9 and 13-17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Aoyama et al. (U.S. Pat. No. 5,202,085). This rejection is respectfully traversed.

Aoyama et al. appears to disclose for example, full-length fuel rods 6, medium length short fuel rods 9 (designated with a "+" in Figure 13) and short fuel rods 8 (designated with cross hatching in Figure 13) (see column 9, lines 4-9). Other figures designate the medium length and short length fuel rods with different numbers. However, at least one of the full-length fuel rods 6 is positioned outward of any of the medium length or short length rods 9, 8 and between any of the medium length or short length rods 9, 8 and the channel box 1. Aoyama et al. therefore does not disclose a plurality of intermediate-length fuel rods outwardly disposed in said channel and each proximately positioned to one of said perimeter walls as recited in amended Claim 8.

Aoyama et al. therefore does not anticipate amended Claim 8. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claim 8. Because Claims 9 and 13-17 depend from Claim 8, Aoyama et al. therefore does not anticipate any of Claims 9 or 13-17 for at least the same reasons. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claims 9 and 13-17.

Claims 1-5 and 7-17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Soneda et al. (U.S. Pat. No. 5,192,496). This rejection is respectfully traversed.

It is noted Claim 11 has been herein canceled, rendering the 35 U.S.C. § 102(b) rejection of Claim 11 moot.

Soneda et al. appears to teach part length fuel rods divisible into regular or full length rods 1, first partial length rods 20 with cladding tubes shorter than the cladding tubes of rods 1 (see column 12, lines 38-46), and second part length rods 30 having the same structure as partial fuel rods 20 (see column 14, lines 49-50). The length of partial length rods 20 therefore appears to differ from the length of partial length rods 30 only by the "effective length of the fuel". See column 14, lines 50-54.

Soneda et al. does not disclose part-length rods being divisible into two groups including a second group having short-length rods divisible into two rod sub-groups, each sub-group having three short-length fuel rods arranged in a triangular shape, each of said short-length rods being shorter than said intermediate-length rods as recited in amended Claim 1. Soneda et al. therefore does not anticipate amended Claim 1. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claim 1. Because Claims 2-5 and 7 depend from Claim 1, Soneda et al. does not anticipate any of Claims 2-5 or 7 for at least the same reasons. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claims 2-5 and 7.

Soneda et al. does not disclose a plurality of short-length fuel rods disposed in said channel inward of said intermediate-length fuel rods, said short-length fuel rods

being divisible into two rod sub-groups, each sub-group having three short-length fuel rods arranged in a triangular shape, each of said short-length rods being shorter than said intermediate-length rods as recited in amended claim 8. Soneda therefore does not anticipate amended Claim 8. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claim 8. Because Claims 10 and 12-17 depend from Claim 8, Soneda et al. does not anticipate any of Claims 10 or 12-17 for at least the same reasons. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claims 10 and 12-17.

Claims 1-11, 13 and 14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Ueda et al. (U.S. Pat. No. 5,068,082). This rejection is respectfully traversed.

It is noted Claim 11 has been herein canceled, rendering the 35 U.S.C. § 102(b) rejection of Claim 11 moot.

Ueda et al. appears to disclose three types of fuel rods, including a full length fuel rod 21 and a second type of fuel rod 22 with full length having interposed members 27 disposed therein where fuel enrichment is reduced. See column 3, lines 26-41 and column 8, lines 20-48. Fuel rods having interposed members are generally designated with the letter "P" in the figures, unless numbered specifically as a short fuel rod 43. See column 8, lines 28-29 and the figures. Ueda et al. also appears to disclose one or more third types of "short" fuel rods 43, 51. See column 14, lines 47-66. Short fuel rods 43 are designated P1 in Figure 25B and short fuel rods 51 are designated P2 in Figure 25B, each short fuel rod 51 being shorter than short fuel rods 43. See column 14, lines 61-64.

Ueda et al. does not disclose part-length rods being divisible into two groups including a first group having intermediate-length rods each disposed proximate to said inner perimeter wall as recited in amended Claim 1. Ueda et al. also does not disclose part-length rods being divisible into two groups including a second group having short-length rods divisible into two rod sub-groups, each sub-group having three short-length fuel rods arranged in a triangular shape, each of said short-length rods being shorter than said intermediate-length rods as recited in amended Claim 1.

Ueda et al. therefore does not anticipate amended Claim 1. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claim 1. Because Claims 2-7 depend from Claim 1, Ueda et al. therefore does not anticipate any of Claims 2-7 for at least the same reasons. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claims 2-7.

Ueda et al. does not disclose a plurality of intermediate-length fuel rods outwardly disposed in said channel and each proximately positioned to one of said perimeter walls as recited in amended Claim 8.


Ueda et al. therefore does not anticipate amended Claim 8. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claim 8. Because Claims 9-10 and 13-14 depend from Claim 8, Ueda et al. therefore does not anticipate any of Claims 9-10 or 13-14 for at least the same reasons. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claims 9-10 and 13-14.

### CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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